IN THE CLAIMS:

Claims 1-34 are cancelled herewith.

New claims 35-54 are submitted as follows:

1-34. (Cancelled).

35. (New) A processor-readable storage medium comprising processor-executable instructions configured for:

identifying a plurality of instructions executing on a processor over an interval of time, wherein the plurality of instructions corresponds to one or more applications executing on the processor;

identifying one or more thread and process states corresponding to the identified instructions;

receiving a plurality of instantaneous power consumption values over the interval of time from a power measurement circuit; and

correlating ones of the instantaneous power consumption values with corresponding ones of the identified instructions and corresponding ones of the identified thread and process states so as to derive a power profile for the interval of time.

36. **(New)**   A processor-readable storage medium as recited in claim 35, wherein the identifying comprises:

interrupting the processor;

sampling a program counter of the processor;

scanning a lookup table to find an address indicated by the program counter; and

determining an instruction located at the address.

37. **(New)**   A processor-readable storage medium as recited in claim 35, wherein the receiving comprises:

querying the power measurement circuit; and

receiving digital power readings from the power measurement circuit based on the querying.

38. **(New)**   A processor-readable storage medium as recited in claim 35, wherein the receiving comprises receiving digital power readings from the power measurement circuit at preset time intervals.

39. **(New)**   A processor-readable storage medium as recited in claim 35, wherein the instantaneous power consumption values correspond to respective measured amounts of electrical power consumed during execution of the corresponding identified instruction on the processor.

40. **(New)** A processor-readable storage medium as recited in claim 35, wherein the power profile is configured to be output to a user in a format selected from the group comprising:

a table; and

a graph.

41. **(New)** A processor-readable storage medium as recited in claim 35, and further comprising processor-executable instructions configured for:

outputting the power profile to a user in the form of a graphical display including:

at least some of the instantaneous power consumption values plotted with respect to time; and

at least some of the identified instructions plotted with respect to time.

42. **(New)** A processor-readable storage medium as recited in claim 41, wherein the plotted identified instructions are formatted so as to visibly distinguish the identified thread and process states corresponding thereto.

43. **(New)** A processor-readable storage medium as recited in claim 35, wherein at least one identified thread and process state is characterized by one or more of:

thread running, thread blocked, thread sleeping, thread migrate, process run and process no run.

44. **(New)** A processor-readable storage medium as recited in claim 35, wherein the processor is a component of a device selected from the group comprising:

an embedded mobile PDA (personal digital assistant) computing device operable by battery power;

a cell phone;

a smart phone;

a notebook computer;

a desktop PC (personal computer);

a workstation;

a server;

a mainframe computer; and

an Internet appliance.

45. **(New)** A computer comprising a power profiler configured to:

identify thread and process states corresponding to software instructions executing on a processor;

receive instantaneous power consumption data corresponding to the execution of the software instructions; and

correlate the instantaneous power consumption data with the software instructions and the thread and process states such that the software instructions and their corresponding identified thread and process states are associated with instantaneous power consumption values indicating amounts of electrical power consumed over time during the executing of the software instructions.

46. **(New)** A computer as recited in claim 45, further comprising a lookup table, the power profiler further configured to monitor a program counter on the processor and to identify the software instructions through the lookup table based on the program counter.

47. **(New)** A computer as recited in claim 45, further comprising a power profile having a plurality of power consumption values associated with corresponding software instructions and corresponding thread and process states so as to indicate amounts of power consumed during the execution of the software instructions.

48. **(New)** A computer as recited in claim 47, wherein the power profiler is further configured to output the power profile to a user.

49. **(New)** A computer as recited in claim 48, wherein the power profiler is further configured such that the power profile is output to the user by generating a graphical user interface.

50.   **(New)**   A system comprising:

a power profiler configured to correlate, over time, a plurality of software instructions with corresponding instantaneous power consumption levels during execution of the plurality of software instructions;

a lookup table having information for identifying ones of the software instructions; and

a power profile being generated by the power profiler and associating instantaneous power consumption levels with the identified software instructions and one or more thread and process states corresponding to the identified software instructions.

51.   **(New)**   A system as recited in claim 50, further comprising:

a power measurement circuit configured to measure the amount of power consumed during execution of the identified software instructions; and

an analog to digital converter configured as part of the power measurement circuit to convert analog power consumption measurements into digital power consumption data.

52.   **(New)**   A system as recited in claim 50, wherein the power measurement circuit is a component of a target computing device on which the identified software instruction is executed.

53.   **(New)**   A system as recited in claim 50, wherein the power profiler is further configured to output the power profile to a user by generating a graphical user interface.

54. **(New)** A system as recited in claim 53, wherein the power profiler is further configured such that the graphical user interface includes:

at least some of the instantaneous power consumption values plotted graphically with respect to time; and

at least some of the identified instructions plotted graphically with respect to time, the plotted identified instructions formatted so as to visibly distinguish the identified thread and process states corresponding thereto.